



Sensory Lab

Nutrition & Food Science Workshop

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What is Sensory Evaluation?

"Scientific discipline used to **evoked**, **measure**, **analyze** and **interpret** reactions to those characteristics of foods and materials as they are perceived by the senses of

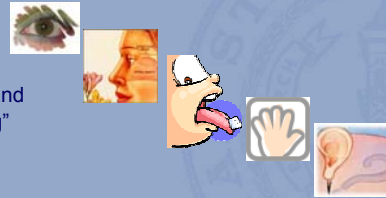
sight,

smell,

taste,

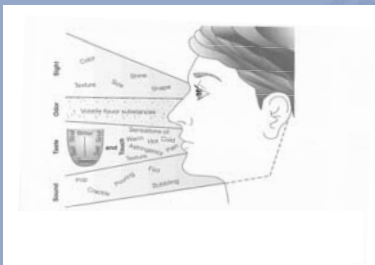
touch and

hearing"



(Institute of Food Technology)

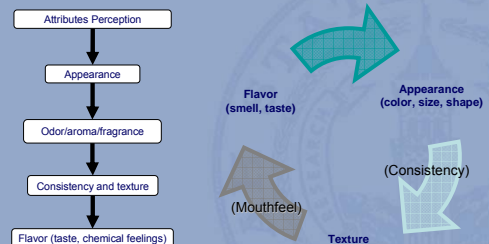
Why is Sensory Evaluation Important?



5 senses

Sensory Attributes

How do we perceive the attributes?

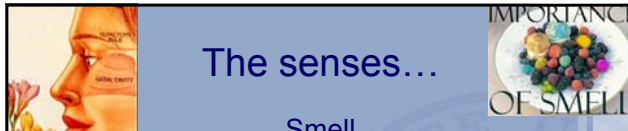




The senses...

Taste ≠ Flavor!!!!!!!


- Taste ⇒ Taste buds
 - Sweet
 - Sour
 - Salty
 - Bitter
 - Umami
- Flavor ⇒ Taste + Retro nasal olfaction



The senses...

Smell

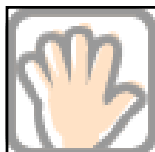
- Identify and judge foods
- Chemical nature of odorous stimuli
- Odorous substances:
 - Volatile
 - Soluble in mucus
 - Non-ionic compounds (MW < 300)
 - Structure of A ≈ B, but odor is ≠!!!!
- Orthonasal ≠ retro nasal olfaction
- Associated with memories



The senses...

Vision

- Colors characteristics:
 - Saturation (deepness)
 - Hue (color itself)
 - Intensity
- Color Receptors (cones):
 - Blue: Cyanolabe (S receptors)
 - Green: Chlorolabe (M receptors)
 - Red: Erythrolabe (L receptors)
- Black and white receptors (rods)



The senses...

Touch

- Kinesthetic sensitivity: spatial position and movement
- Cutaneous sensitivity (skin)
 - touch,
 - pressure,
 - temperature
 - pain



The senses...

Hearing

- Sounds detected by the ear
- Bone conduction
- Sound location
 - Horizontal plane
 - Range plane (distance)

Tricks that the senses play on us...

• Taste Modifiers

- Gymnema sylvestre
 - inhibits the perception of sweetness
- Miracle fruit
 - Makes sour taste sweeter

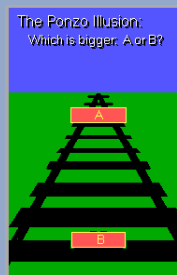
Tricks that the senses play on us...

• Sensory Adaptation

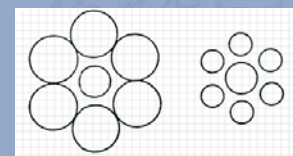
- Taste
- Vision
- Smell
- Touch
- Hearing

Tricks that the senses play on us...

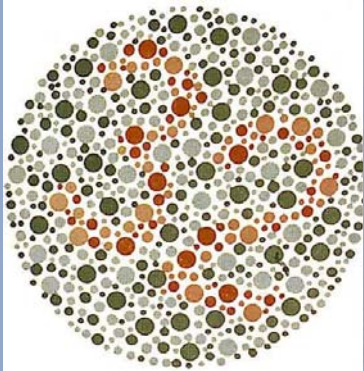
• Vision tricks



The Ponzo Illusion:
Which is bigger: A or B?

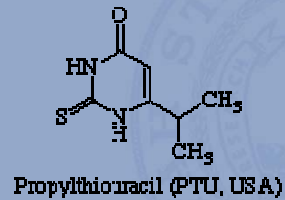


Color Blindness



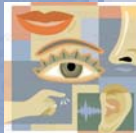
PROP sensitivity

- PROP (6-n-propylthiouracil) theory

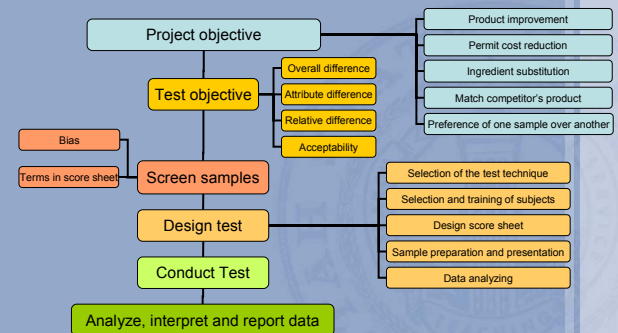


Performing sensory analysis

- Grading
- Quality Assurance
 - Off-flavors
 - Reformulation
 - Equipment
 - Processing variables
 - Storage conditions
 - Alternate ingredients
 - Packaging
- Sensory/Chemical/Physical Properties
- Product Development
- Marketing
- Non-food Products

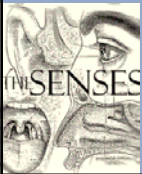


Conducting a Sensory Study



Performing sensory analysis

- Using human subjects as instruments
 - Selection
 - Training (calibration)
 - Follow up
 - Rewards



Environment

- Surroundings:
 - Space
 - Light
 - Odors
 - Temperature
 - Sanitary facilities
 - Distractions
- Product
- Test



Performing sensory analysis

Instruments vs. Sensory????

- Color \Rightarrow Instrument (Colorimeter)
- Texture \Rightarrow Instrument + Sensory
- Aroma \Rightarrow Sensory

Lab....

- Sweetness inhibition
 - *Gymnema sylvestre*
 - Sugar, sour candy, chewing gum
- Super tasters
 - Taste PROP papers
- Tastes identification
 - sweet,
 - sour,
 - bitter and
 - salty

